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AUTHOR Kosak, Hermann H.; Surlin, Stuart H.
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ABSTRACT

Graphic design decision-makers assume that graphic design preferences vary among demographic groups. This assumption was tested on a population of 200 college students reflecting a valid demographic distribution in four categories: sex, community size, income, and occupational status. Subjects were asked to rank order their preferences for four basic designs: square, triangle, circle, and square-circle. The results indicated significant variations in graphic design preferences among the four demographic groupings. Females prefer circle and square simple designs. Males prefer a triangle simple design. Individuals from urban communities prefer a circle simple design. Rural individuals prefer circle and square simple designs. High income individuals prefer circle and square-circle simple designs. Low income individuals prefer triangle and square simple designs. Individuals with high occupational status prefer a circle-square simple design; those with low occupational status prefer circle and square simple designs. Similar variations were reflected in expressed preferences for designs requiring easy-versus-arrested eye movement. (CH)

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MEASURING SIMPLE AND COMPLEX GRAPHIC DESIGN PREFERENCES

by

Hermann H. Kosak
and
Stuart H. Surlin

Henry W. Grady School of Journalism
University of Georgia
Athens, Georgia

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Graphic designers have become increasingly aware of the preferences different people have for different graphic designs and the relevance these preferences have for graphic design decision-makers. Unfortunately, a systematic analysis of these preferences has never been undertaken. Intuition has dominated the field of graphic design while systematic scientific inquiry has been absent. This paper describes the findings from a study which is the first in a series of studies aimed at uncovering preferences and interpretations of various graphic designs by various groups of individuals.*

The first part of this particular study deals with the preferences individuals exhibit for the most simple and basic of designs: the square, triangle, circle, and square-circle, (a variation of the two more simple designs). Commonly accepted beliefs concerning these designs are: (1) males prefer the straight and perpendicular corners of the square, supposedly this projects strength, order, and definiteness which the male prefers, (2) triangles are preferred by individuals which are upwardly mobile and progressive, most likely high income, high status males, (3) females prefer the more feminine circular design, the curves of the circle symbolically representing the soft and delicate "curves" of the feminine form, and (4) the unique form of the square-circle is believed to have appeal for sophisticates, individuals seeking something unusual or unique.

*The authors wish to acknowledge the assistance of Ellen L. Green, research assistant in Journalism, for her contribution to the collection and analysis of data.

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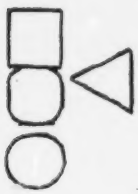

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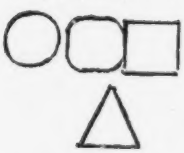

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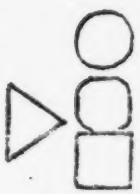

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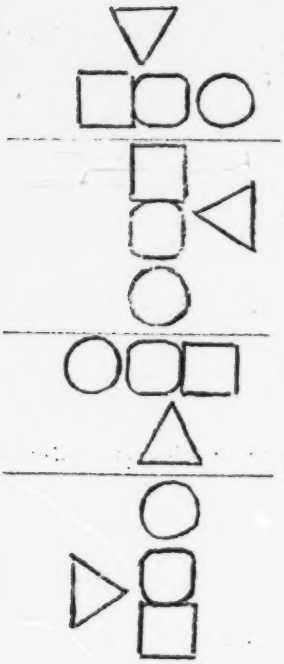
Likewise, beliefs centering around the abstract complex design, utilizing the four basic designs (see Appendices 1-4), can also be delineated. For example: (1) Figure 1 which uses the triangle as a means of directing eye flow toward the bottom of the design should project a depressing or negative feeling, the opposite effect should result from having the triangle direct eye flow upward, (2) Figure 2 presents the viewer with a design which arrests his normal eye movement (from top left corner to bottom right corner) because of the placement of the triangle pointing back to the upper left corner, this should result in a larger exertion of time and energy for the viewer thus making him choose this design as most interesting and unique but also most discomforting because of the pressure toward unnatural eye movement, (3) Figure 3 presents the triangle pointing up, this should project an uplifting or positive feeling to the viewer and should be rated as a favorite design by most people, and (4) Figure 4 allows eye movement to flow from left to right in the manner perceived as being most "natural" for people in this society thus resulting in easy visual flow for the viewer, and visual contentment.

Several independent variables are used as predictor variables, in this study, relating to the preference for, and interpretation of, graphic designs. These variables are: sex, community size, income, and occupation. These variables were chosen as our antecedent demographic variables upon which our predictions are based. Our predictions are not based upon existing theory of previous research findings they are primarily based upon the intuitive beliefs accepted by some graphic designers.

For the simple designs, we predict that the following demographic typologies will be relatively most favorable toward the:

1) Square - low income, low occupational status, urban, males
2) Triangle - high income, high occupational status, males
3) Circle - rural, females
4) Square-Circle - high income, high occupational status individuals

For the complex designs, the following predictions are made:



1) Figure 1 - low income, low occupational individuals will see it as projecting their own unhappiness in society; will be chosen the least often as a favorite by the total sample groups.
2) Figure 2 - high income, high occupational status, urban individuals will see it as being a unique and exciting design, overall it will not be chosen often.
3) Figure 3 - rural individuals and females will see it as a happy, uplifting design, overall chosen quite often.
4) Figure 4 - urban individuals and males will appreciate the ease with which this design can be viewed, overall this design will be chosen most often as a favorite by the total sample group.

Method

In total, 200 college students at the University of Georgia were sued as respondents. Most of the respondents are taken from the Schools of Journalism, Education and Agriculture within the University. Respondents were chosen through a quota system so that each of the antecedent variables would be adequately represented. Thus a quota sample seemed more appropriate than a random sample of the population since the selected demographic variables under analysis are, most likely, not randomly distributed throughout the population.

Each respondent was simultaneously shown the four simple graphic designs and asked to rank his order of preference for these designs. Then the four complex designs were shown one at a time, with the order of presentation being varied from respondent to respondent. The respondent's most favorite and least favorite choices for the complex designs were recorded along with the reason why these choices were made. Demographic information was then collected and collapsed into dichotomous categories for analysis purposes. See Appendix 5 for example of the response schedule.

The overall demographic categories contained the following number of respondents:

Sex - Male - 108
Female - 92

Community - Rural (24,999 population or less) - 78
Urban (25,000 population or more) - 122

Income - Low ($9,999 or less) - 53
High ($10,000 or more) - 147

Occupational Status* - Low (79 or below on Extended North-Hatt Occupational Status Scale) - 153
High (80 or above) - 47

Findings

Chi-square analysis points out the interactive relationship of the demographic variables. As would be expected, sex breakdowns were not significantly different when cross-tabulated with community, income, or occupation. On the other hand, and equally as expected, the urban respondents have higher household incomes ($X^2 = 35.69$, $df = 2$, $p < .001$). Therefore, there are interactive effects between variables and this should be kept in mind when analyzing these findings.

By consecutively assigning a 4.0 the first rank order choice down to a 1.0 for the fourth rank order choice the overall mean scores and rank order for the simple designs was arrived at for all respondents. The overall rank is:

(1) Circle (2.69)

(2) Triangle (2.55)

(3) Square - Circle (2.40)

(4) Square (2.35)

---

*For further explanation of scale and ratings, see Delbert C. Miller, Handbook of Research Design and Social Measurement, New York: David McKay Co., Inc., 1970.

Differences from this overall rank order are evident however within and between demographic subgroupings. (See Table #1) A demographic profile can be drawn for the type of individuals ranking each design either more or less favorably than others:

1) Circle - overall, rated highest by all groups except males.
2) Triangle - rated highest by low income males and lowest by high income, high occupation status, females.
3) Square-Circle - rated highest by high income and high occupational status individuals, and lowest by rural, low income, low occupational status individuals.
4) Square - overall rated lowest by all groups, but higher by rural, low income, low occupation status, females.

For the most part, the highly interactive demographic variables are highly correlated with one another in their ranking of simple designs, the urban, high income, high occupation status individuals in one group and the rural, low income, low occupation status in another. The male and female ranks operate somewhat independently of one another and the other groups.

When choosing the most and least favorable complex designs, several trends distinctly develop. (See Table #2) Based on difference scores between respondents choosing the design as the favorite and least favorite, with positive scores meaning that the figure that was picked as a favorable design more often than it was picked as a least favorite design, the rank in order of preference for all respondents is:

1) Figure 4 (+18)
2) Figure 3 (0)
3) Figure 2 (-4)
4) Figure 1 (-14)

Several large difference scores exist between demographic subgroups in their complex design choices. A demographic profile of the design choices are:

1) Figure 4 - liked the most by all respondents, especially more by rural, high income, high occupation individuals.
2) Figure 3 - no discernable difference existed between or within demographic subgroupings.
3) Figure 2 - preferred relatively more by urban, low income, low occupation status individuals.
4) Figure 1 - liked the least by all respondents, especially by high income, low occupation status males.

When asked about their reasons for choosing their most favorite and least favorite complex designs several response trends developed. (See Table #3 and #4) The four most often mentioned reasons why a figure was chosen as a favorite were: (1) Comfort/Smoothness (45 respondents), (2) Familiarity (34 respondents), Balanced (31 respondents), and (4) Don't know (23). The four most mentioned reasons for choosing the least favorite figure were: (1) Unbalanced (56 respondents), (2) Don't know (35), (3) No Meaning/No sense (26 respondents), and (4) Discomfort/Uneasy (24 respondents). In many ways, these reasons present both sides of the same issue.

Analysis

Several predictable, as well as unpredictable, findings have resulted from this study. The findings will now be compared to the predictions mentioned in the first part of this paper. For the simple designs:

1) Square - predictions which stated that low income and low occupational status individuals would prefer the square the most were correct, however, a widely accepted belief

regarding the square as a favorite choice of males was greatly negated. Also, rural individuals preferred the square to a greater extent than did urban individuals. Likewise, the relative overall dislike for the square design by the respondents would have been difficult to correctly predict.

2) Triangle - we were correct in predicting males as having the greater preference for triangles, however, it is the low income, low occupational status type which prefers triangles the most, opposite to commonly held beliefs.

3) Circle - almost unanimously, this design is everyone's favorite--except for males. The preference for rounded smoother designs may be related to currently occurring factors or it may be an inherent portion of the human personality, this remains to be determined.

4) Square-Circle - this design is generally not preferred by the "common" individual, but is preferred by the high income and high occupational status, urban, males, generally believed to be the individuals who do seek the unusual and unique.

The complex design findings are equally enlightening. For the complex, designs:

1) Figure 1 - as predicted this design was chosen least often as a favorite. High income, low occupation status males rate it least favorably. They may sense the depressing pressure, symbolized by the down-pointing triangle, more than others. Here are males who have experienced financial

security but may have found the qualitative or abstract aspects of a successful life lacking since they were raised in a lower occupational status level environment. This design is favored for its "comfort in viewing," but a majority of the reasons given for choosing the design as the most unfavorable of the alternatives point to the depressing nature of the design. A subjective feeling one receives for the negativeness felt by respondents viewing the design is projected in the large number (14) of people who "didn't know" why they disliked it. It was also seen as a depressent on one's imagination (11 respondents).

2) Figure 2 - as predicted, this design was not often chosen as a favorite, however, the individuals, preferring this design, did not match predictions. Low income, low occupational status individuals were most likely to choose this figure as a favorite, and the most often mentioned reason for choosing this figure was that it reminded them of something "familiar" (14). The items mentioned were: camera, person, axe. The most often mentioned reason for disliking this figure was that it was "unbalanced" (19). This clearly coincides with the prediction that arrested eye movement leads to discomfort and a perception that the design is "not in balance." Concurrently, the number of people stating "comfort or smoothness" as their reason for favorably perceiving this figure was the lowest when compared to the number of individuals using this reason as

the basis for choosing their favorite figure. Thus, urban, low income, low occupational status individuals are less upset about having their "natural" eye movement diverted.

3) Figure 3 - overall, this design is perceived quite favorably, as predicted. However, it is favorably perceived about equally as well by all respondents. It was chosen as a favorite because it: projects action (8), is unusual (8), is balanced (8), familiar (10), and is comfortable to look at (11). The major reason for disliking this figure, "unbalanced" (24), did not detract from the overall favorable reaction respondents had to the "uplifting nature" of the up-pointing triangle.

4) Figure 4 - as predicted, this design was most often chosen as a favorite. Favorable reaction to the ease of eye-movement can be seen in the reasons given for choosing this design as the most favorite: Balanced (13), strength (11), comfort/smoothness (9). Again, a favorable subjective reaction to this design, most likely because of eye movement flow, can be read from the high number of individuals (11) who "didn't know" why they chose this figure as their favorite. There was no dominant reason why this figure was viewed unfavorably. Overall, rural, high income, high occupational level individuals were more often likely to choose this figure as a favorite. These may just be the type of people who appreciate graphic designs which allow a natural free flow of eye movement.

Conclusions

Based on this exploratory study, some clearly identifiable graphic design preferences have been uncovered for various demographic groupings. A brief overview of these results point to various demographic profiles and their graphic design tastes (both concretely and relativistically):

1) Sex - "Females" prefer circle and square simple designs, and an easy eye movement complex design. "Males" prefer a triangle simple design, and an easy eye movement complex design.
2) Community Size - "Urban individuals" prefer a circle simple design and arrested eye movement in a complex design. "Rural individuals" prefer circle and square simple designs, and an easy eye movement complex design.
3) Income - "High income individuals" prefer circle and square-circle simple designs, and an easy eye movement complex design. "Low income individuals" prefer triangle and square simple designs, and arrested eye movement in a complex design.
4) Occupation - "High status individuals" prefer a square-circle simple design, and an easy eye movement complex design. "Low status individuals" prefer circle and square simple designs, and arrested eye movement in a complex design.

Much more research data should be collected, controlled experiments should be designed, but most important a systematic collection of data relating to graphic design preferences and perceptions should be undertaken. A viable direction for further research is the use of other demographic variables, other graphic designs, and an investigation of the relative degree of preference for various graphic designs within a particular demographic grouping. Much needs to be done in this area of non-verbal graphic communication.

TABLE #1

MEAN SCORES AND RANK ORDER OF

SIMPLE DESIGN CHOICES FOR DEMOGRAPHIC SUBGROUPS
(N = 200)

	(2.69) Circle	(2.55) Triangle	(2.40) Square-Circle	(2.35) Square
Male (M = 108)	2.47 2	2.73 1	2.32 3	2.21 4
Female (M = 92)	2.76 1	2.34 4	2.40 3	2.50 2
Rural (M = 78)	2.73 1	2.51 2	2.36 4	2.40 3
Urban (M = 122)	2.75 1	2.57 2	2.36 3	2.31 4
Low Income (M = 53)	2.68 1.5	2.68 1.5	2.28 4	2.36 3
High Income (M = 147)	2.77 1	2.50 3	2.59 2	2.34 4
Low Occupation Status (M = 153)	2.80 1	2.56 2	2.29 4	2.35 3
High Occupation Status (M = 47)	2.57 1.5	2.51 3	2.57 1.5	2.34 4

TABLE # 2: DIFFERENCE BETWEEN CHOOSING COMPLEX DESIGN AS FAVORITE AND LEAST FAVORITE

(+) - more favorite choice (-) - more least favorite choice
(N = 200)

Side	Sex			Community			Income			Occupation			Overall Diff.
	M	F	D	Urban	Rural	D	High	Low	D	High	Low	D	
#1	-9	-5	4	-7	-7	0	-10	-4	6	-4	-10	6	-14
#2	-2	-2	0	+1	-5	6	-5	+1	6	-11	+7	18	-4
#3	+2	-2	4	+2	-2	4	-2	+2	4	+2	-2	4	0
#4	+9	+9	0	+5	+13	8	+17	+1	16	+12	+6	6	+18

TABLE #3: REASONS FOR CHOOSING COMPLEX SIDE AS MOST FAVORITE

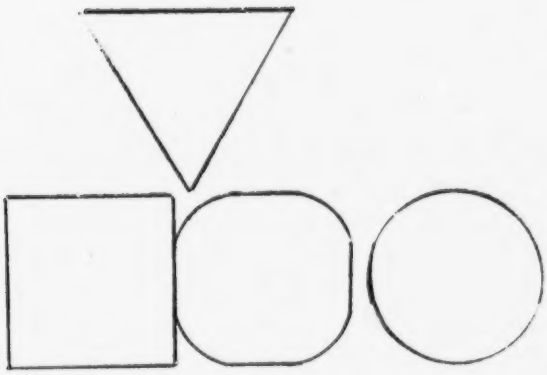
Side	Reasons: Comfort/ Smoothness	Familiar	Balanced	DK/no Reason	Action	Strength	Unusual	Excatenant	Fun/ Happiness	T
#1	18	4	7	5	2	5	1	1	0	43
#2	7	14	3	5	5	4	2	4	2	46
#3	11	10	8	2	8	0	8	0	2	49
#4	9	6	13	11	6	11	1	1	0	58
T	45	34	31	23	21	20	12	6	4	N=196*

*Four respondents did not respond to question

TABLE #4: REASONS FOR CHOOSING COMPLEX SIDE AS LEAST FAVORITE

Side	Reasons: Unbalanced	DK No Reason	No Sense/ No Meaning	Discomfort/ Uneasy	Unattractive	Unimaginative	No Action	Familiar Object	Too Arranged	T
#1	5	14	5	5	7	11	7	1	2	57
#2	19	7	9	6	5	0	1	2	1	50
#3	24	5	6	6	6	3	0	1	0	51
#4	8	9	6	7	2	3	0	3	1	39
T	56	35	26	24	20	17	8	7	4	N=197*

*Three respondents did not respond to question



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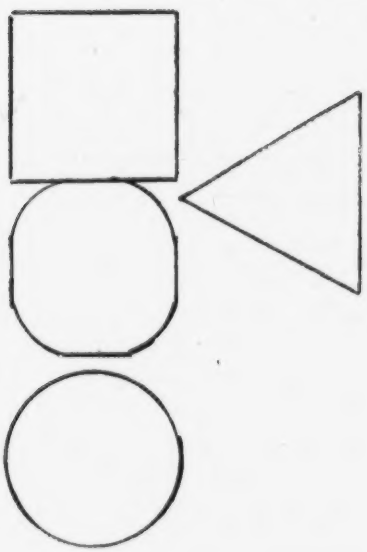

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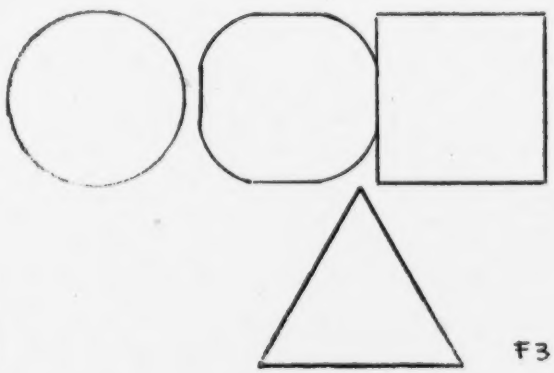

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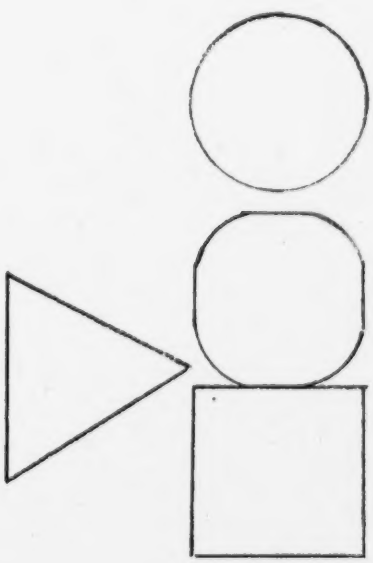

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Basic Graphic Design Questionnaire

(1) I would like you to look at these four designs and rank them in order of preference. Which one do you like the best, second best, next best, and then the least.

(1)
(2)
(3)
(4)

Code:
Square = S
Triangle = T
Circle = C
Square-Circle = SC

(2)(A)(After showing the complex design, ask:) At which angle do you like this design the best? 1 2 3 4 DK Why?

_____

_____

(B) At which angle do you like this design the least? 1 2 3 4 DK

Why?_____

_____

Now, a few last questions: Male _____ Female _____

Have you spent most of your life in a

	approximately population
large city _____	200,000 +
small city _____	25,000 to 199,999
township _____	1,000 to 24,999
rural area _____	farm or town of 999 or less

Could you please give me a rough estimate of the yearly income for your household:

$15,000 or above _____
$10,000 - $14,999 _____
$5,000 - $9,999 _____
$4,999 or below _____

(One last question): In general terms, what is the occupation of the head of your household?

Father _____

Mother _____

Other _____